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BY

HENRY KOPLIK, M. D.,

ATTENDING PHYSICIAN TO THE EASTERN DISPENSARY, NEW YORK.

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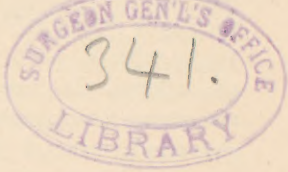

ACUTE ARTICULAR RHEUMATISM IN THE NURSING INFANT.*

By HENRY KOPLIK, M. D.,
ATTENDING PHYSICIAN TO THE EASTERN DISPENSARY, NEW YORK.

The rare occurrence of acute articular rheumatism in the infant at the breast and the restriction of material within certain limits must make this short paper appear simply in the light of a contribution to the literature of this subject rather than as presenting anything especially striking in the study of the disease. So infrequent is the occurrence of polyarthritis rheumatica in the nursing infant that those authors who have had, perhaps, the best opportunities to study its phenomena have completely ignored its existence. Most of the writers to whom I have had access find little reason to depart very far from the lines first laid down by Bouchut concerning the affection. The types, however, which Bouchut brings forward as characteristic have already been rejected by competent critics (Senator). They can not be included under the disease acute articular rheumatism in any sense. In presenting the histories of the fol-

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lowing cases I have endeavored to find those characteristics of articular affection and constitutional disturbance which we in later life recognize as classical to the picture of acute rheumatic polyarthritis. The rarity of the disease in such young subjects, I reiterate, may account for the paucity of the material. In these little patients we find the presence of the disease in a number of articulations, the rapid successive involvement of these articulations by the disease, the presence of a certain amount of constitutional disturbance. I have not been so fortunate in the cases I record as to find any symptoms or signs referable to the heart. It is desirable to keep this class of cases distinctly separated in our minds from those diseases lately designated by Gerhardt as *rheumatoid* affections of the joints. The rheumatoid affections of the joints have their counterparts in those obscure joint affections of infancy the pathology of which is still more obscure than that of true rheumatic arthritis, those forms of multiple synovitis, with or without endocarditis, complicating the later stages of the exanthemata.

Case I.—Female infant, aged six months, nursing at the breast, of good development; no previous illness. Mother states that six days previous to the time when the child was seen by the writer it had developed pain, heat, and redness in the joints of the left foot; this was followed by a similar affection of the left wrist and finger joints of the left hand. There was fever, also some profuse perspiration. When the child was seen the metatarso-phalangeal joints of the great toe and the neighboring three toes were much swollen, red, and painful; the temperature of the joints was increased to the touch. The dorsum of the foot was swollen and œdematous; the last phalangeal joint of the great toe was swollen, red, and painful. On the left hand all the metacarpo phalangeal joints, except that of the thumb, were swollen, red, and painful; the left elbow was in the same condition. The last phalangeal joints of the left hand were in the same condition also. The tem-

perature of all the joints was raised to the touch. The body temperature in the rectum was 105·5° F., pulse 180, respiration 48. A profuse perspiration was present, restlessness was extreme, the skin was clear, there was no eruption. Examination of the heart revealed a negative result. The lungs showed the presence of an acute broncho-pneumonia. The urine was normal, the bowels were regular. No other joints subsequently became affected. The temperature gradually began to subside three days after seeing the child. At this time the temperature was 102·5°, pulse 186. The joint affection in the hands and elbow was the same, but the foot was beginning to improve. Five days after the child was first seen by the writer, and on the eleventh day of the disease, a scarlet-fever eruption appeared on the chest and spread over the body. During the stage of desquamation some of the joints remained swollen and painful. This tenderness of the joints did not subside completely until the eighth week after the onset of the rheumatic affection. At no time were there signs of endocarditis.

Case II.—Female infant, aged nine months, nursing at the breast, of good weight and development; no previous illness of any kind; no history of skin eruption or scarlet fever; no signs of rhachitis present. Ten days previous to consultation the infant had developed redness and swelling of all the metatarso-phalangeal joints of the toes of both feet. Also all the joints of the fingers became affected similarly after a short time. There were fever, vomiting, extreme restlessness, and cough. The patient showed signs of pain when the fingers were handled. When seen she had swelling of all the joints named on both feet. The infant was very anæmic, and there was an increased temperature over the joints. The skin of the dorsum of the feet was œdematous. The metacarpo-phalangeal joints and all the phalangeal joints of both hands were swollen, red, and painful. The fingers were held in an extended condition, the thumbs adducted, resembling the condition and position seen in athetosis. The temperature in the rectum was 102°, pulse 126. The lungs showed an acute bronchitis. The heart showed nothing abnormal.

On March 30th, nine days after the writer first saw the child,

and in the third week of the disease, recovery was complete. Under the influence of treatment the pain in the joints, redness, and swelling had slowly subsided, the child became less restless, and after the time mentioned could be looked upon as completely convalescent. The joints, though stiff, were moved somewhat by the little patient; no signs of synovitis were present.

In Case I the tender age of the patient and the complete uncomplicated recovery are to be noted. I had occasion to see the little patient some time after recovery. The joints showed no stiffness or signs of the severe articular disturbance or synovitis. The heart also revealed no endocarditic affection or muscular disturbance. The marked interval between the first appearance of the joint affection and the scarlet rash (eleven days) is notable. There are no other points in Case I except the complication of broncho-pneumonia. The typical swelling, redness, and increased temperature of the numerous articulations, and the high fever from the onset of the joint affection, all give the picture of two separate affections (rheumatism and scarlet fever) rather than the complication of the scarlet fever in this case with the rheumatism.

In Case II there was no history or symptom which might lead to the acceptance of the presence of scarlet fever before or after the onset of the joint affection, yet the child was said to have been ill with the joint affection for ten days previous to the consultation, and under observation and treatment the joint affections subsided completely in nine days, making a duration of nineteen days. In this case the absence of endocarditis was remarked and at no time during the height of the disease or the convalescence could that complication be discovered. In this case also the general febrile movement, the swelling, redness, and increased temperature of the affected joints, and the pain in the same,

were leading symptoms, and caused the parent to seek relief for the patient in treatment. Here I wish to call attention to the peculiar position of the fingers affected in both hands —that of various degrees of extension with adduction of the thumb. This position reminds the observer of the picture met with in the forms of athetosis. I have had occasion to see this very same position of the fingers in marked acute rheumatic affection of the phalangeal joints of the fingers occurring in a boy aged ten years. I attribute this peculiar spastic-like position taken by the fingers to an involuntary contraction of the extensors of the fingers (interossei). These contractions are brought about by pain. It is also the position, it seems, which would afford relief, if such were possible, from pain.

Bouchut, in the earlier edition of his treatise on the diseases of infancy and childhood, records three cases of articular disturbance in the nursling, and with true scientific diffidence places them under the heading of polyarthritis rheumatica. These cases have long ago been discussed, and the conclusion from competent critics (Senator) has been that the cases of Bouchut at the present day would be placed under the heading of sepsis rather than that of rheumatism.

Wiederhofer, however, records a case as acute articular rheumatism which seems to be more of the color of the picture obtained in this affection. The case was that of a female child, aged twenty-three days, suffering from blennorrhœal ophthalmia. A few days after convalescence from the eye affection the little patient was attacked with an arthritic affection of the left knee, wrist, and elbow. After fifty-four days complete convalescence resulted. Here it is remarkable that the child suffered from an affection of the eyes of probable gonorrhœal origin. The joint affection therefore takes the form more of those joint troubles seen in the adult

after attacks of gonorrhœa of the urethra, both in the male and in the female. A careful study must exclude the case of Wiederhofer from the simple rheumatic affections of the articulations, placing it rather under the rheumatoid affections described by Gerhardt.

Demme records a case of rheumatism and endocarditis in a child nine weeks old, of which I have not been able to find any detailed history.

Henoch mentions a case of acute articular rheumatism occurring in a child ten months old. This case was complicated with pleuritis and pneumonia. Its duration was four to five weeks. Staeger (Senator) records a case of acute articular rheumatism at the early age of four weeks. Rauchfuss has met with only two cases of polyarthritis rheumatica among 15,000 young infants. Roger records a much-cited case of rheumatism in a child aged two years.

This would seem to cover the very meager literature on this interesting subject. As to the complications of endocarditis, pleuritis, and broncho-pneumonia, they have all been recorded in isolated cases.

On the whole, Cadet de Gassicourt, after a consideration of an immense material, thinks that acute articular rheumatism is a less frequent affection in childhood than in the adult. In the *nursing infant*, however, the affection is so extremely rare that authors and writers have more or less doubted the authenticity of published cases. Wiederhofer's questionable case was in one of seventy thousand infants. My own cases were gathered from a material of seven thousand sick children. I place no weight, however, on such meager statistics. Henoch remarks that many of these cases in the literature are obscure in detail, and thinks that some are, perhaps, instances of syphilitic disease of the epiphyses, or multiple periostitis and abscess of the joints. Meigs and

Pepper think that many irregular forms of rheumatism occur in the nursling, but are lost to observation. D'Espin and Picot urge the rarity of the disease below the age of two years. Langsteet and Cadet place the cases below four to five years in the doubtful category. It would not aid us to go at length into the consideration of the relations of endocarditis to rheumatism, but certain it is that well-authenticated cases of endocarditis have been recorded in the nursling (von Dusch).

There is no subject which is surrounded with more obscurity than that form of rheumatism recorded as accompanying or following the exanthemata. This is notably the case with scarlet fever. Thomas, Bohn, Cadet de Gassicourt, Gerhardt, Litten, Kohrer, and Bokai all have their peculiar views about the nature of this joint affection. As yet there are no exact data of the relation of the one disease (scarlet fever) to the affection of the articulation. Cadet finds rheumatism an epiphenomenon in about one tenth of the cases of scarlet fever. The picture presented in Case I of this paper is not that seen, as a rule, in scarlet fever. Here the joints first affected in the majority of cases are those of the hands. The affection sets in after or during desquamation. In the case here presented the articular affection preceded the eruption. There being no doubt on this point, I feel inclined with Bokai to consider such cases rather the rarer complication of true articular rheumatism by a subsequent attack of scarlet fever. Such cases have been recorded by Larcher and Hiller (Bokai). Knowing exactly so little and seeking to gain knowledge on the chief forms of articular rheumatism, we should be inclined to side with these authors.

Writers are by no means so ready to regard the form of rheumatism occurring in scarlet fever as pure articular rheumatism. A. Jacobi, and subsequently Gerhardt, have

presented a most interesting view on this subject. Gerhardt excludes these joint affections from the class of true rheumatisms. He regards the possibility in scarlet fever of a mixed form of infection. It is very possible that the scarlatinous poison, as in typhus erysipelas, may manifest itself in an affection of the synovial membranes, as it does in that of the mucous membrane of the mouth, larynx, glands, etc. Indeed, this view is certainly one of the most scientific yet advanced. In Case I this view would be difficult to apply, seeing the length of time that elapsed between the affection of the joints and the appearance of the rash. Yet, as most authors (Immermann among others) are inclined to regard rheumatism as an acute infectious disease, its occurrence with scarlet fever is no more peculiar than the occurrence of diphtheria with the same malady. Gerhardt found that joint affections were likely to appear in certain epidemics of scarlet fever, in some mounting as high as 37 per cent. of the cases, in other epidemics being entirely absent. Again, the joints of the hand are mostly affected (85 per cent.), and in most instances the affection is of slight severity (Litten, Bokai). Kohrer found that 6 per cent. of patients with scarlet fever had joint affection, and in 66 per cent. the hands were affected. Trousseau found one third of the patients affected with joint trouble. Lastly, endocarditis is less common in the form of rheumatic joint affection occurring in scarlet fever than in the pure form of the disease (Ashby, "Brit. Med. Jour.," 1886, p. 971). Finally, if the pure form of acute articular rheumatism is obscure in pathogeny, its various subforms are still more so. It is, therefore, peremptory in diagnosis not to obscure classification by recklessly applying the terms rheumatic and rheumatoid to all possible joint or muscular affections, and this is more the truth in infancy. Here a number of affections in a hasty examination may be easily confounded, and I will only glance at

some of the more important joint affections which in their incipiency or outset may resemble acute rheumatism, though they can hardly be said to be difficult of diagnosis.

Congenital Syphilis.—There are obscure cases of inflammatory trouble at the epiphyses of the bones in the vicinity of a joint which might be incorrectly diagnosticated, especially in the absence of signs familiarly present in this disease. The mothers of these infants can not be depended upon for a very correct history. There must be many cases resembling the following, in which the previous history would aid the diagnosis: Male child, aged three months, nursing at breast; all external evidences of syphilis absent; brought back to me with redness and swelling at the epiphyseal junction, the redness and swelling spreading over the joint, the right elbow swollen and painful, redness and swelling of the ungual phalanges. No suppuration present. Immediate improvement and disappearance of symptoms under appropriate treatment. I saw this case at the eighth month; it then presented a late papular syphilide and plaques.

In *rhachitis* I have met with cases where there was some excessive enlargement of the articular ends of the bones, thus causing parents to think the joints were the seat of disease. The cases occurred in very young infants, and the various phenomena of rhachitis were exaggerated, and rapid and acute in their onset. Movements in these cases were apparently very painful to the infant; it would cry out with pain when fondled by the mother. There was marked clubbing of the articular ends of most of the long bones, with apparent joint enlargement, but the *shafts* of the bones were also broadened and thickened to a marked degree. Pressure on the *joints* and along the shafts of the bones elicitated signs of pain. There were in my cases craniotabes, lack of development, and intestinal disturbance.

Cases of circumarticular abscess may at the outset closely simulate rheumatic arthritis. In these cases there are often abscesses in other parts of the body; the infection may be from the patient's own person or from some external source. The history of a preceding attack of an acute infectious disease will aid in the diagnosis, as such abscesses are prone to follow in the course of an exanthematous fever.

Acute osteomyelitis may at first mislead to the more favorable diagnosis of rheumatism. The formation of abscess, the swelling along the shaft, as well as in the joint vicinity, aid the diagnosis.

Sepsis, in its multiple forms, may affect the joints, and we have only to refer to the literature for many of these cases. To-day the diagnosis can scarcely be said to be obscured by any difficulty.

Beyond the rheumatoid affections discussed above, I have of late noted that very young nurslings, when vaccinated, give evidences of pains in the joints, just as would be likely to be found in the adult. The mothers in several cases came to me with the remark that the child would cry out when handled, and investigation showed an actual tenderness about the knees and elbows when even slightly manipulated. These symptoms appear when the vaccine vesicle is turning pustular. These cases would be classed with the rheumatoid affections of the exanthemata.

In every infant the subject of a joint affection suspected to be rheumatic, the heart naturally receives a good share of attention. Yet I know of nothing more difficult than the determination of an adventitious sound in the heart of these little patients. The overconfident diagnosis of cardiac murmur in these infants will often account for the good prognosis given by some clinicians to cardiac disease of infancy and later childhood. I refer to the ultimate disappearance of murmurs, or so-called cardiac dilatations. Error is easily

made in these infants for many reasons: The restlessness of the patient, the great rapidity of the heart's action, the difficulty of distinct localization over the limited area of a small chest, sometimes distorted by the processes of rhachitis. I have not infrequently found adventitious sounds, heard at the base of the heart and also at the apex, disappear after a cessation of fever or a diminished rapidity of cardiac action. These murmurs, heard as I have heard them in the course of exanthemata, must be regarded as dynamic. Murmurs occurring with the first sound and disappearing after a few days, as above mentioned, I have always regarded as not referable to the endocardium.

It is imperative in all cases to wait for a slower cardiac action, or to reduce the number of heart-beats with artificial means (digitalis), before entering the diagnosis of endocardial complication. The nursing infant, we conclude, is not exempt from the liability to attacks of acute rheumatism. In these little patients endocarditis may be absent. This latter fact only strengthens the belief generally entertained by authors (Gerhardt), that the prognosis of rheumatism, good as it is in the adult, is still better in infancy and childhood.

In connection with the subject of rheumatoid affections in infants who are suffering from any disease due to the influences of the gonococcus or the micro-organisms of erysipelas (blennorrhœal ophthalmia or erysipelas), I desire to add the following:

A female infant, three months and a half old, nursing at the breast, was vaccinated on the left arm. The vaccine pustule, in active suppuration, was opened by a traumatism. Necrosis of tissue to an extreme degree followed, with a very red and angry-looking areola spreading toward the elbow on the extensor side of the arm, and with fever. On the day after the first visit the pustule was still suppurating, but the ulcer was

cleaner. The child had very marked swelling of the left knee; it was twice as large as its fellow, red, and very painful to the touch, and when movements of the joint were made there seemed to be some effusion. The mother had noticed the swelling during the previous night. The knee was put up in an immobilizing splint, which was removed after two days, as the knee was smaller than at first. The joint was still painful, red, and of heightened temperature; the vaccine pustule was healing kindly, and the blush around its base was subsiding. The knee symptoms improved from this time onward, together with the vaccine pustule and ulceration; but at the present time (a week afterward) the joint is still painful.

Here we have a typical case of joint trouble due in great probability to infection of the structures of the joint by the micro-organisms playing the active destructive rôle about the vaccine lesion.

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